

Successful Methods

A Magazine of Construction Service

S. T. HENRY, President

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Extended Terms

MARRIAGE licenses and death certificates are two of the few things which cannot be bought on the installment plan in this country. Sales plans and methods have been developed on the basis of pay-as-you-use until few individuals think of paying cash for what they buy. As a nation we have thus become buyers on extended terms.

With this national habit so well formed, it is logical to find manufacturers of machinery expected to give long credits. Reasonable terms are good practice in most lines of business where purchases involve large amounts and the buyer and seller are well established. But in recent years our people have been educated to expect terms of such length as are impracticable in the machinery business, unless prices are increased or quality is sacrificed.

In lines of merchandising where extended terms are practicable, one or more of several conditions obtain which are absent or limited in the heavy machinery business. Two of these which are most common are large margins of profit or large-scale production. The other conditions that justify extended terms of credit are usually peculiar to different lines of business.

In the heavy machinery business the nature of things limits the margin of profit to an extent that leaves no allowance for financing the customer over long periods. The total volume of sales of any one line of construction machinery also is small compared, for example, with that of automobiles. Hence, neither of these common factors permits the maker to carry the buyer long enough to allow him to earn his payments as he goes.

Some manufacturers of heavy machinery ignore these facts in their sales policies. Either they are ignorant of them, or they are confronted by competition which forces them to attempt the impracticable. Generally it is a combination of both.

As a result, salesmen go about the country offering to place machines involving a cost of thousands of dollars on the payment of a few hundred down. The buyer can name his terms for the balance. This policy naturally leads to failure. A notable case of how it recently wrecked an old-established business is fresh in the minds of the industry. Many smaller concerns come and go continuously because they do not know that they cannot finance their customers.

All this produces a chaotic condition that is harmful both to the producer and the consumer. The latter may figure that he will take all he can get. When he

does he usually takes a lot of grief in the way of flimsy equipment, or poor service or both. Experienced buyers know this and shy off from the dollar-a-week-for-the-rest-of-your-life credit terms. The financially strong ones make big money discounting their bills. Of course, all cannot follow this latter plan, but they will be wise if they at least realize what they are doing when they accept the salesman's argument that all the buyers of his machine earn enough to pay for it as they go. That kind of equipment is usually chargeable to expense and not to plant account.

Is It a Boom?

BUILDING permit totals continue to break all previous records. The question naturally arises, how long can the country continue to build at the present rate?

Experienced business men are divided into two sides on this question. One thinks many cities and towns are overbuilt. The other believes that a new set of conditions growing out of developments of recent years will continue to call for a vast amount of new building work for a long time to come.

It seems likely that somewhere in between these two extreme views would be safe to use as a foresight. Certainly there are notable examples of cities and towns in which office and loft buildings are in excess of requirements. It is also commonly known that in some lines of manufacturing the country has plant capacity in excess of its requirements.

On the other hand, there are many places in which there is opportunity for new office buildings, apartments and hotels to earn good returns. Many lines of manufacturing also will require extension of plant. The rate at which the savings deposits of the country have grown of late years indicates that the clerical and laboring classes are likely to continue to build new homes on a vast scale. And it is the volume of residence construction which has lately run the totals up to new levels. Back of the situation lies the needs of the railroads and the farmer. Both have for years built only what had to be had. Now both appear to have better times ahead. If their prospects materialize, a vast volume of building will result.

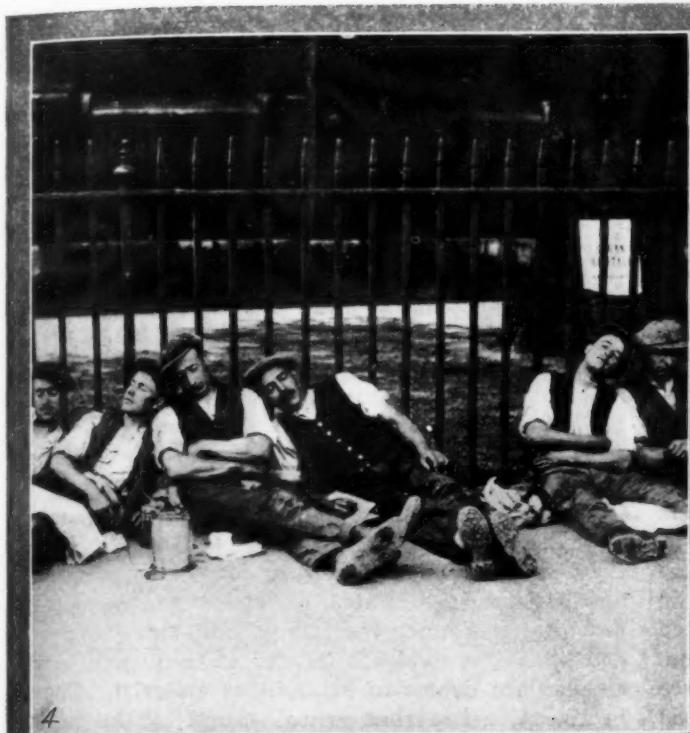
With these favorable prospects, there remains the uncertainties which always confront business in general. Consequently, it seems wise to play safe. There are no grounds for pessimism. At the same time, a conservative course will leave room to haul sails if an unexpected squall arises.

All Construction



1. A great engineer is honored by this monument unveiled recently at the summit of a pass through the Rockies which he discovered. © International.
2. After many years of faithful service, this old covered bridge in Vermont was laid low by a storm. © International.
3. Philadelphia has taken the first steps in preparing for the Sesqui-Centennial of the signing of the Declaration of Independence by building an immense stadium. © P. & A.

Helps the Public



4. The British workman doesn't work all the time, as this photograph taken in London demonstrates. © Keystone.
5. Everybody who had anything to do with the construction of this building in Jersey City saw to it that he was not forgotten when the cornerstone was laid. It pays to advertise. © P. & A.
6. California, long famous for its highways, is maintaining its reputation by building roads through territory such as this. © P. & A.

MAKING THE HIGHWAY SERVE THE PUBLIC

Pennsylvania Has Adopted Broad Definition of Maintenance

SO much emphasis has been placed upon construction of highways in the last few years that the importance of maintenance has not been generally realized. The dividing line between construction and maintenance often proves hard to draw. Pennsylvania, which has been a leader in the development of good roads, has realized that maintenance is fast overtaking construction, and the Department of Highways is anticipating the fact that when the great ten thousand mile State Highway System reaches completion practically all of its activities will automatically be classed as maintenance.

Paul D. Wright, Secretary of the Department, and William H. Connell, Deputy Secretary and Engineering Executive, have defined maintenance as "anything contributing to the safe passage of traffic." This definition brings into maintenance many kinds of work that ordinarily would be classed as construction, for example, a new bridge which replaces an old one is classed as maintenance, but a new bridge, on an entirely new location, is credited to construction. Surface treatment and re-surfacing of highways are maintenance, but the building of a hard surface road where a dirt road has been is construction. The erection of all traffic signs, the removal of snow, the patching of hard surfaced roads, the care of berms and ditches; all are charged against maintenance. So far as possible, the Department limits construction to patently new work.

The Department is organized in such a way that the chief executives have oversight of both mainte-

nance and construction. Mr. Wright, Mr. Connell, and W. A. VanDuzer, Deputy Engineering Executive, are in general charge. They, of course, are at Harrisburg. In addition there are four Division Engineers who also make their headquarters at Harrisburg. Under these Division Engineers are fifteen District Engineers, with headquarters in their districts. Under the District Engineers are the fifty-two Superintendents of Maintenance who have actual charge of the maintenance units of the Department. Each Maintenance Superintendent has from 150 to 250 miles of highway to account for. This highway must be kept open for traffic at all times, unless closed for purposes of reconstruction, and also must be kept in good condition.

As the concrete roads of the State have been down only comparatively a few years the maintenance on them consists mainly of filling any cracks with tar and patching the joints. On the macadam roads the patching is a much more important operation. Storage piles of gravel are located at frequent intervals, as also are drums of bituminous material. The Department insists that gravel stored by the roadside shall be kept in neat piles and that these piles shall be worked from either end in order to maintain their neat appearance.

The earth roads of course require frequent dragging, and this is one of the important maintenance jobs. There are at present about 4400 miles of earth road in the State Highway system. For the last three years the Department has been oiling these



RESURFACING A PENNSYLVANIA HIGHWAY. GANGS LIKE THIS ARE AT WORK ALL OVER THE STATE

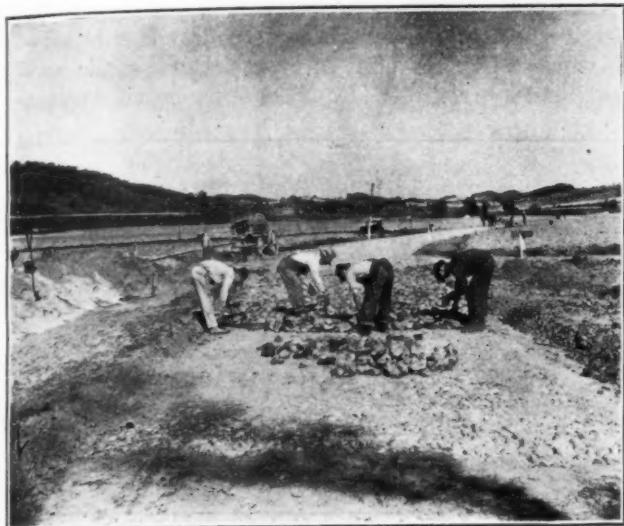
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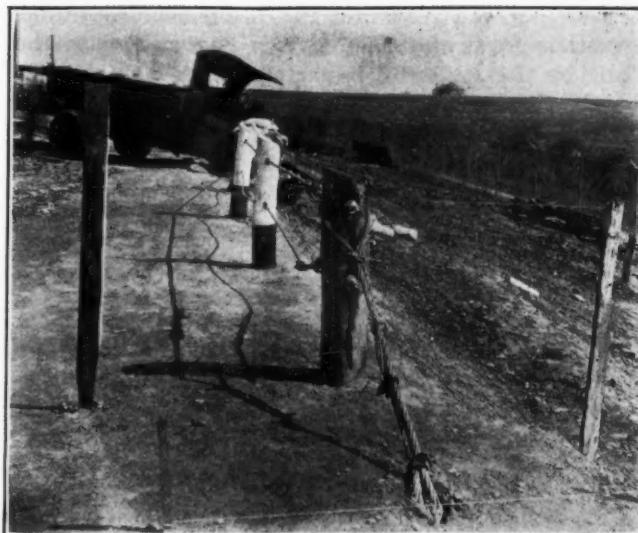
earth roads. This work is done twice a year, in June and again in August when necessary. Of course, the ditches and berms on all types of roads have to be taken care of. The Department has coined the term "tailoring" for this sort of work.

The fact that the roads must be kept open for the public use is always in the minds of the men in the



LAYING THE FIRST COURSE

Pennsylvania Highway Department. In the winter, what is known as the "Snow Alarm" is sounded as soon as a storm begins. There are sixty-five storage sheds in the State with a man always on duty in each one. He reports the beginning of the storm to his District Engineer, and as soon as two inches of snow have fallen the snow removal equipment starts to



GUARD RAIL MUST STAND PUNISHMENT

work and continues until the roads are clear.

Much the same procedure is followed at other seasons of the year, when sudden storms cause washouts and otherwise obstruct the roads. Every patrolman in the State is required to get out and inspect his section of road as soon as a storm has passed. He must remove all obstructions, and if he has not the men and equipment for the purpose, must obtain them from his Superintendent. A good example of the way in which this system works was furnished by a storm which swept over part of the State on the evening of Saturday, August 8th. More than 100 trees were blown down between Harrisburg and Chambersburg but the Highway Department forces were on the job the moment the storm was over and by morn-



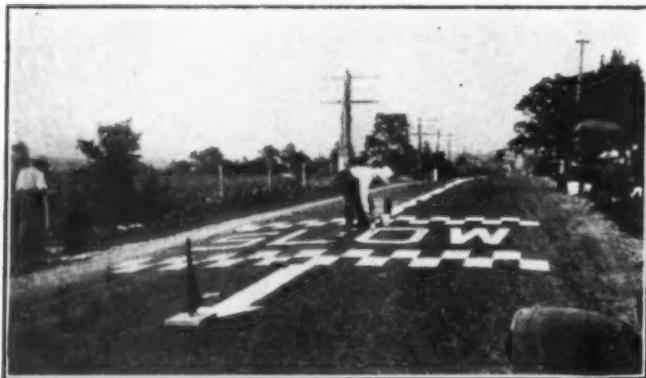
CUTTING OUT A BAD CURVE ON THE LINCOLN HIGHWAY. THE SHARP TURN TO BE ELIMINATED MAY BE SEEN AT THE RIGHT

ing had the road ready for the heavy Sunday traffic.

Another form of traffic service is rendered to the public by the Highway Department. A motor patrol is maintained which not only watches out for violations of the highway laws but gives first aid whenever accidents occur. In addition to this first aid work, the Highway Department feels that it is its

tances to the nearby towns and cities. A new series of signs is being prepared for posting at the boundary line of cities and boroughs. These signs will give the name of the town and also any historical fact of interest to the traveler. All rivers and creeks of considerable size also are being marked.

The system of painting warning signs on the pavement, which has been used for several years, is being further developed. A new type of warning sign has been devised at important crossroads. It consists of the word "Slow" painted in giant letters on the pavement and surrounded by a checker-board arrange-



THE NEW CROSS ROADS WARNING IS PAINTED ON THE PAVEMENT

duty to do everything possible to help motorists who become involved in accidents. If a car goes off the road and a Highway Department truck is working anywhere in the neighborhood, it will at once be despatched to the scene of the accident to give whatever aid it can.

The proper marking of the highway is another phase of maintenance that is receiving increased attention. In the last few years more than 15,000 signs have been placed on the State Highway system by the Highway Department; all danger points are marked, directions signs at crossroads give the dis-



THE FLAG SYSTEM FOR CONTROLLING ONE WAY TRAFFIC IS USED ON SECTION UNDER REPAIR

ment of black and white squares. This sign is placed 300 ft. from the intersection, and from that point a 12 in. band of white is painted in the middle of the pavement. This 12 in. stripe is painted on both roads and is so plain that there is hardly any excuse for failing to see it. Railway warning signs also are painted directly on the pavements.



WIDENING A BAD CURVE AND GETTING STONE FOR RESURFACING AT THE SAME TIME

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In the last few years Pennsylvania has been conducting some very interesting experiments to determine the strength of various types of guard rail. The United States Bureau of Public Roads and the Pennsylvania Highway Department began to experiment at Harrisburg in November 1923, and finished the tests only a few months ago. Different types of guard rail were set up at the top of a bank and a truck loaded with five tons of sand bags was run into them. The earlier tests showed consistent failure of the guard rails then in use, but new types were developed and when the report of the tests is issued, recommendations will be made which will be of interest to the entire country.

Many of the highways in Pennsylvania follow the lines of old turnpikes which date back to the years just after the Revolution. One job which is constantly under way is the ironing out of the kinks in

the roads which have existed for so many years. On the Lincoln Highway, which crosses the southern part of the State, this work is continually going on. One bad curve after another is eliminated. In one 80 mile stretch, the Highway Department maintains two steam shovels which are constantly engaged in easing the curves and otherwise improving the road. The Lincoln Highway was paved about 1913, and most of the way consists of water bound macadam. For the last year or two all replacement has been done with penetration macadam.

Before coming to Pennsylvania, Mr. Connell had a wide experience in highway and other engineering work. He has given Pennsylvania the benefit of this experience and has emphasized throughout the department the idea that the mission of Pennsylvania's highways is to serve the public. No man in the department ever is allowed to forget that fact.

BORDEAUX BUILDS NEW WAREHOUSES

American Concreting Plant Used by French Contractors

BY A. BOYER

Directeur-Adjoint to Societe des Grands Travaux de Marseille

AN article in the April issue of **SUCCESSFUL METHODS** described the work which the Societe des Grands Travaux de Marseille at Limoges where a new railway depot is under construction. Another big job which is being handled by the same organization is at Bordeaux, where new warehouses are being put up for the Chamber of Commerce.

The accompanying photograph shows the layout of the concrete placing plant during the construction of the warehouses. This plant was made in the United States and consisted of a steel tower and chute so arranged that all of the concrete could be poured from the same setup.

The new building, which is now com-

plete, is 400 ft. long and 114 ft. in width. It is a two-story structure built of reinforced concrete with concrete agglomerate curtain walls. The reinforced concrete foundation rests on timber pilings. Because of the nature of the work for which the building was planned the concrete floors had to pass rigid loading tests before the warehouses were accepted by the Bordeaux Chamber of Commerce.

The Societe des Grands Travaux de Marseille is engaged in big construction work in various parts of France and the railway station job at Limoges and the Bordeaux warehouses are typical examples of its accomplishments. Both have attracted considerable notice.



POURING THE SECOND FLOOR

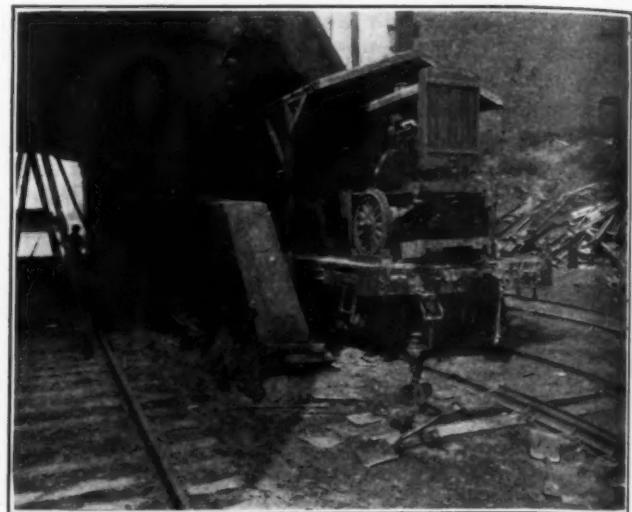
SPECIALISTS IN RESTORATION

Middle Western Organization Keeps Concrete Structures in Repair

THE "Reintegration Process" is the name applied by the Wertz Company of Cleveland, Chicago and Pittsburgh, to its business of restoring and repairing

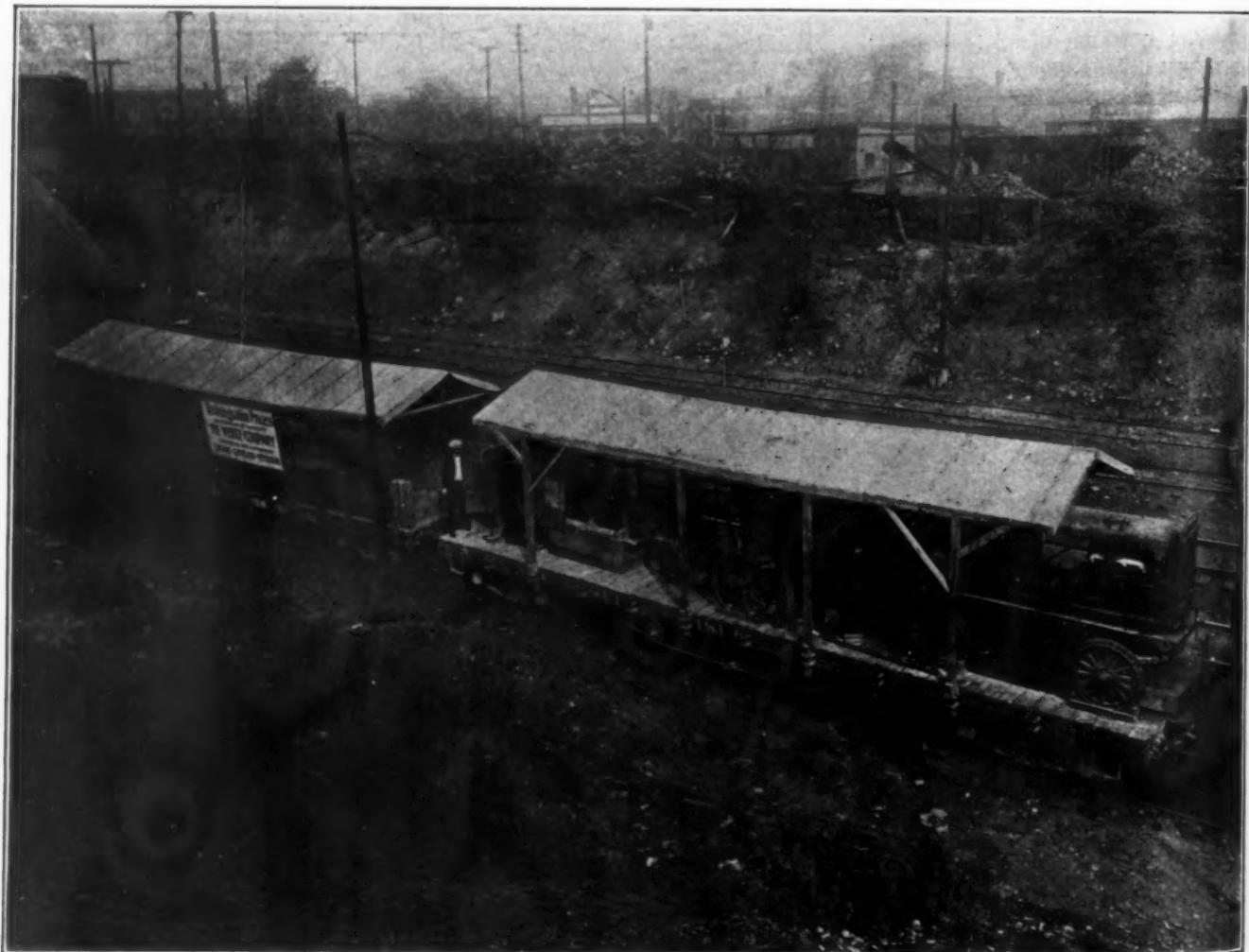


SAND BLAST WORK



OUTFIT AT WORK UNDER BRIDGE

masonry. Translated it means the placing of concrete with a cement gun operated by compressed air. The Wertz Company has made a specialty of this sort of



THE TWO CAR RESTORATION TRAIN READY TO START WORK

work, and in so doing has developed a portable plant mounted on two flat cars which is about as complete and up-to-date an outfit as can be found in the entire country.

The large photograph at the bottom of this page shows the portable plant ready to go to work on the restoration of a concrete railway bridge in Cleveland. All of the operating units are mounted on the first car beginning with the compressor at the front and ending with the mixer at the rear. In between are air tanks and sand blasting apparatus.

The second car, which like the first is covered, transports the sand and cement used in the work. The mixer is so placed that it can be charged directly



IN NEED OF REPAIR

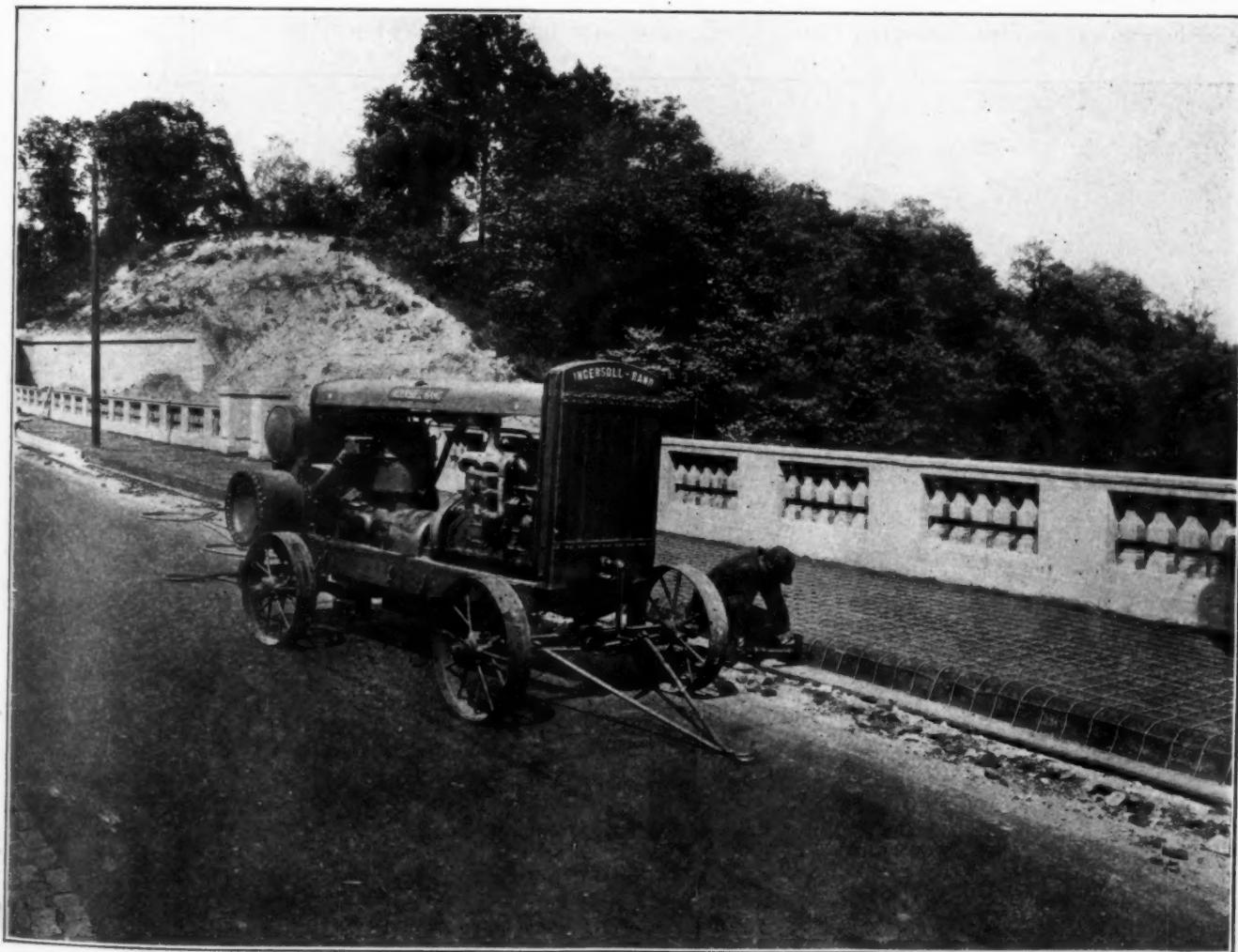
from the second car.

Other photographs show various phases of the job on the Cleveland bridge. The two car train was run under the structure and remained there while the work of repairing the worn concrete was in progress.

In addition to the big plant, which of course can be used only where the work is along railway tracks, the Wertz Company operates smaller cement gun units, which can work anywhere. One of them recently handled

the job of repairing the sidewalks of the great North Hill Viaduct at Akron.

This viaduct was built only a few years ago, but the sidewalks did not hold up and became badly in need of repair as shown in the photograph.



DRILLING HOLES FOR REINFORCING

MOTOR GRADER CLEANS UP SUBGRADE ON CONCRETE ROAD JOB IN ILLINOIS

Smooths Way for Trucks and Then Works with Subgrader in Putting on Final Touches to Prepare Way for Paver

THE proper preparation of the subgrade on a concrete road job is so important that the wise contractor leaves nothing undone to make sure that his concrete is laid on a firm and smooth subgrade. The photographs which accompany this article were taken on an Illinois job and show the results which the contractor accomplished with a motor grader equipped with a scarifying attachment and mounted on crawler traction.

On this particular job the grading had been done the previous season by another contractor, and the winter had wrought its usual damage. The first task assigned to the motor grader was the smoothing of the rough grade so that it could be used by the motor trucks which supplied the mixer. The motor grader covered the entire length of the road and got it into such shape that the trucks could travel at a fairly high speed.

When the work of placing the forms began, it was found that in many places the grade prepared the year before was several inches too high, and extreme-

ly hard and stony as well. The scarifier on the motor grader was sent into action, and as shown in the photograph at the bottom of this page, broke up the hard spots and loosened the entire subgrade.

The grader then piled up the scarified material to await the hand shovels as shown in the photograph at the top of page 11. This photograph shows how the operator handled the machine, leaning the front wheels in order to prevent them from skidding into the forms, which already were in place. The hand shovels followed along behind and threw the excess material outside the forms.

The final touches were, of course, put on with a subgrader but the motor grader also had its share in this operation. Its crawler traction gave it sufficient power to pull the heavy subgrader. The photograph at the bottom of the opposite page shows this part of the work.

Throughout the job the motor grader performed work which made it possible to get the subgrade into shape quickly and economically.



LOOSENING UP SUBGRADE WITH SCARIFIER AND REMOVING HIGH SPOTS LEFT AFTER GRADING DONE THE PREVIOUS YEAR

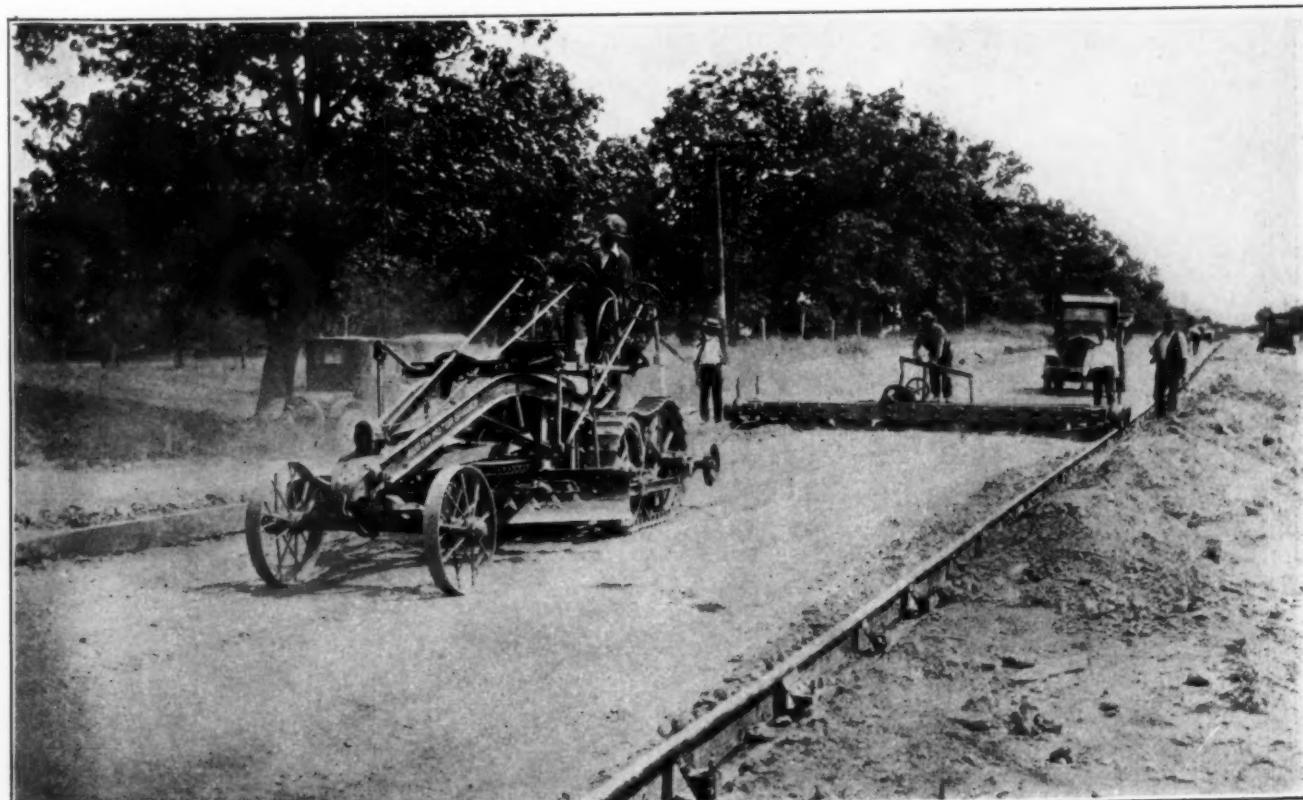
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PILING LOOSENERED EXCESS MATERIAL AND SMOOTHING SUBGRADE



PULLING SUBGRADER WHICH PUTS ON THE FINISHING TOUCHES

WORKING WITH EXPLOSIVES IN MIDST OF THICKLY SETTLED COMMUNITY

Skillful Handling of Dynamite Necessary in Removing Old Canal Bridge in Busy Section of Newark, N. J.

AN interesting job was completed recently at Newark, N. J., where a bridge over an old canal was demolished to lower the grade of Washington Street. The bridge contained fourteen steel beams 38 ft. long and was reinforced with steel rods over which was laid 1 ft. of concrete. Double tracks ran over the bridge and the abutments were of concrete 5 or more ft. at the base and about 15 ft. high.

The structure was in a thickly settled part of the city and great care had to be exercised in the use of the explosives. Holes were drilled 2 ft. apart in rows from the top to the bottom of the bridge in the inner face of the abutments, each row of holes being loaded with an average charge of 1½ sticks of 40 per cent dynamite. They were fired first on one side, then on

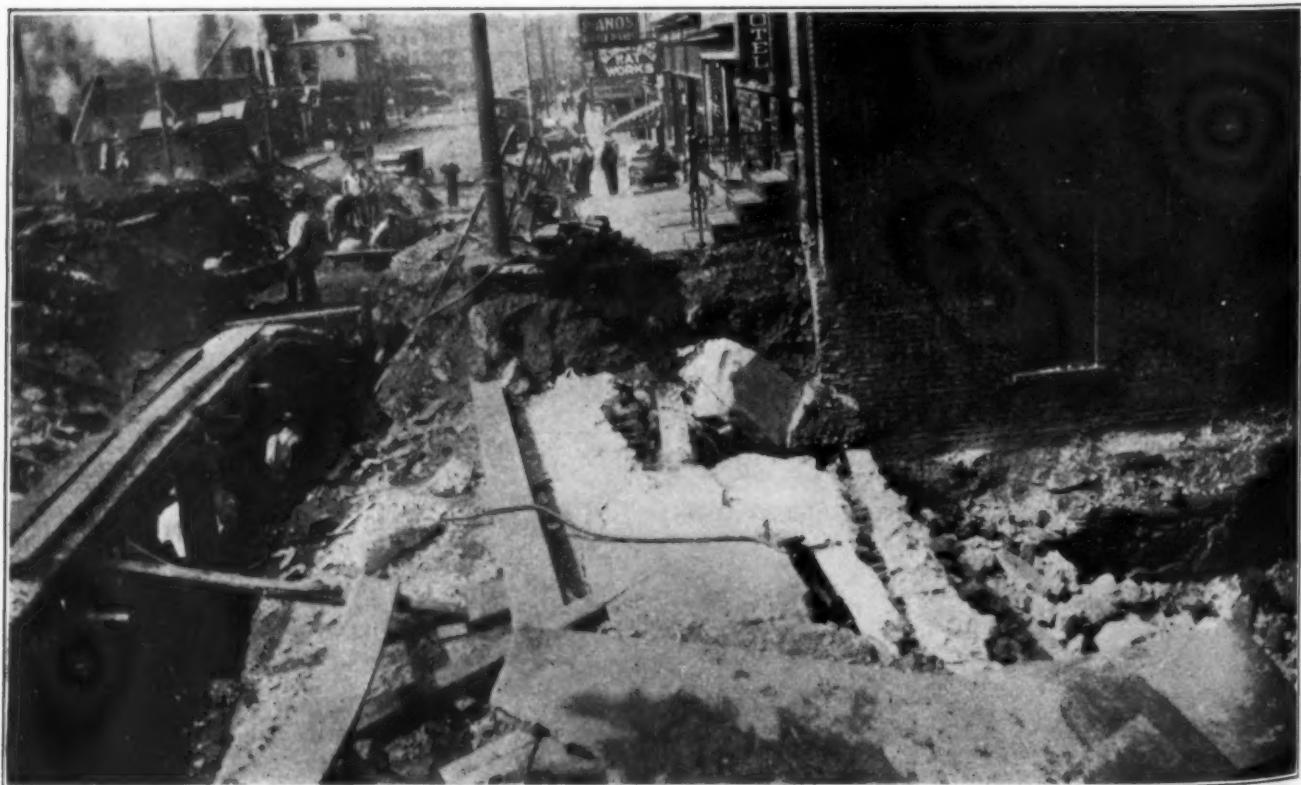


END OF BRIDGE SHOWING RESULTS OF BLAST

were consumed in completing the work.

The three photographs show various phases of the work. The small picture at the top of this page shows the end of the bridge after one of the blasts. This particular charge cut through to the lower telephone system. This end of the bridge was upset away from the conduits containing the telephone cables.

The two large photographs show how two sections of the bridge were dropped on opposite sides of a big



THIS SECTION WAS DROPPED WITHOUT DISTURBING BIG PIPE



DODGING HIGH TENSION WIRES REQUIRED UNUSUAL SKILL

pipe line. It took the most careful sort of blasting to accomplish this result and to clear the pipe.

The contractors on this job were Delaney & Sons

and the actual blasting work was done by L. C. Longstreet of Dunellen, N. J., who has handled explosives successfully in other important work.

American Road Builders Plan Good Roads Week in January

THE American Road Builders' Association, which was organized more than twenty years ago and ever since has been conspicuously identified with the great movement for more and better roads, is planning another forward step.

In the past, the annual meetings of the Association have been planned especially for those actively engaged in the various phases of highway construction. Contractors, engineers, government, state, county and city officials have flocked to Chicago in January in order to attend the sessions of the American Road Builders' Association Convention and visit the great Road Show which has been held in the Coliseum and which in the last two or three years has overflowed into a number of adjoining buildings.

Beginning next January, the Association is planning to tie up its annual meeting with a "Good Roads Week" to be observed throughout the country. The week of January 11, 1926, has been selected as the first "Good Roads Week" and at that time exercises will be held in the public schools, and civic clubs also will hold special meetings.

At the same time the Annual Convention of the American Road Builders' Association will be in progress in Chicago. Men interested in road building from

all over the country will be in attendance. The Coliseum and neighboring buildings will be filled with more than three hundred carloads of road machinery and materials.

Last January more than 16,000 persons attended the Convention and Show, and it is expected that the throng will be even greater in 1926. Chicago will have room for all who attend the convention and show.

W. H. Connell, president of the American Road Builders' Association and Engineering Executive of the Pennsylvania Department of Highways, has announced that the Convention program in Chicago next January will be divided into two sections, the first section which will be of special interest to contractors dealing with the actual construction of roads, and the second section which will appeal to the engineers and municipal officials dealing with the technical problems of highway work.

As usual, reduced railroad rates to Chicago will be in effect the week of the Convention and Road Show of the Association.

C. M. Upham is Business Director of the Association. Any requests for preliminary information should be addressed to him in care of the American Road Builders' Association at Raleigh, North Carolina.

CRANE KEEPS COSTS DOWN ON SALVAGE JOB

Truck Mounted Unit Tears Up, Loads and Piles Old Rails

THE very nature of the work always has a tendency to exaggerate the costs of a salvage job. The man who is in charge of it finds it hard to keep his mind from dwelling on the fact that after all he is only making the best of a bad situation and no tangible or immediate profits are likely to accrue. He watches his costs with an eagle eye, and overlooks no chance to do the job as economically as possible.

An interurban railway in southern Maine recently had to salvage about twelve miles of old abandoned track and because the company was interested in low costs and efficient modern equipment, decided to try out a truck mounted crane on this work.

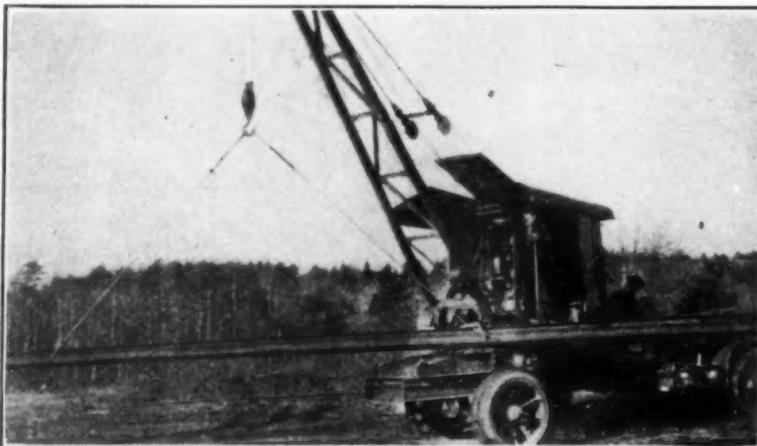
The crane was driven at truck speed to the end of the twelve mile job and started work tearing up the old rail, loading it into 5-ton trucks. The trucks carried the rails five miles to a yard and dumped them off.

Often in loading the trucks the crane was required

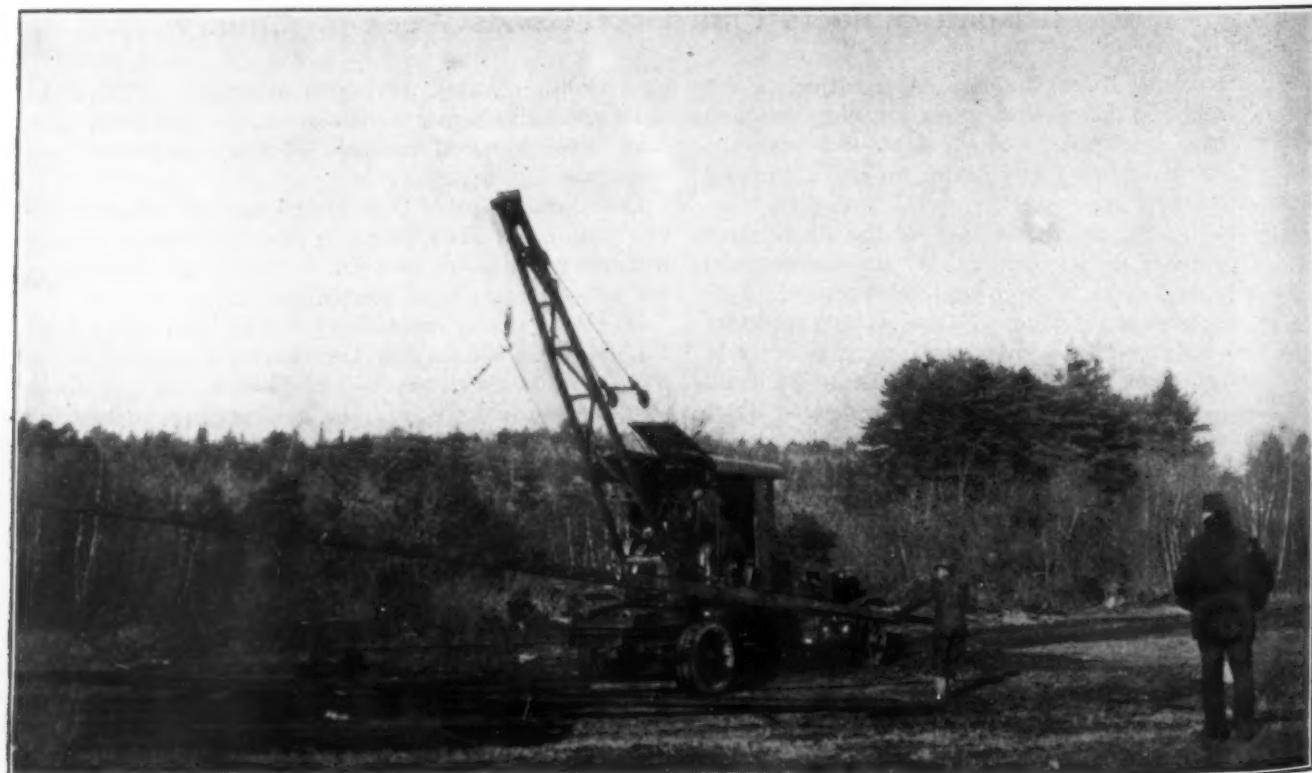
to travel a considerable distance with the rail it had just torn up, suspended in air. The small photograph on this page shows the crane traveling on one of these occasions with two tons of rail suspended. This was possible because of a patented device used on this truck crane consisting of jacks and stirrups, which gave an absolutely rigid stable rear end and still permitted traveling the unit at truck speed with the load suspended. These also permit full spring action when moving the crane without load from job to job.

After the entire twelve miles had been torn up and delivered to the yard, the crane was driven to the yard and was used to stack the rails. One of the large photographs shows the beginning of the piling operation and another the pile almost completed. The rails were carefully and systematically stacked so that they could be easily inspected as reloading was required.

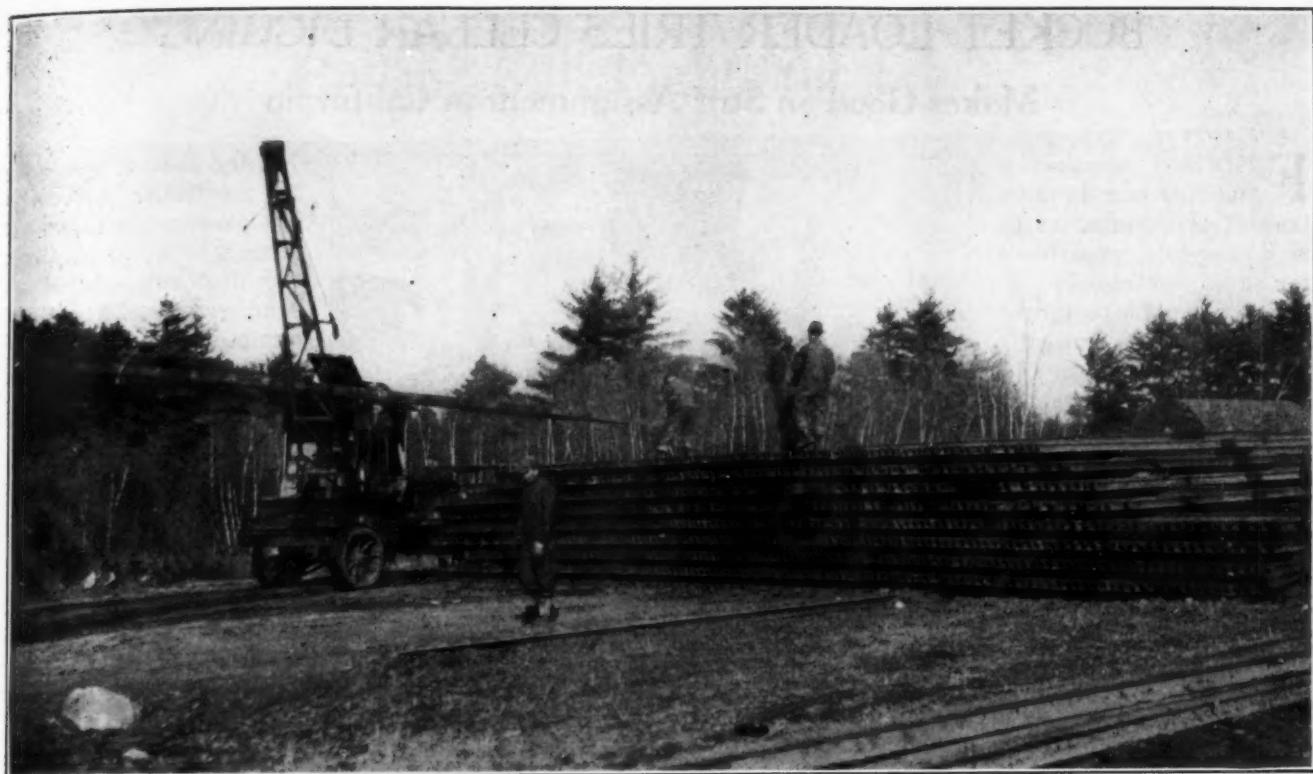
This entire job, including the moves back and forth, and requiring the double handling of 1045 gross tons



CRANE CARRYING HEAVY RAIL AT MOTOR TRUCK SPEED



BEGINNING TO PILE RAILS IN STORAGE YARD



FINISHING NEAT PILE OF RAILS

of rail, was completed by the crane in 16 working days.

Besides the speed with which the job was finished, the labor required to assist the crane was small. The resulting saving made the salvage job a much more

satisfactory proposition than it otherwise would have been. The crane did its full share in keeping down the costs to a level which made the salvage work truly economical.

RECOGNIZED AT LAST

IN a recent issue the New York *Times* paid a tribute to the man who operates a steam shovel. Men who are identified with the construction industry as are the readers of **SUCCESSFUL METHODS**, often lose sight of the appeal which their work makes to the outsider. For that reason the editorial referred to is reprinted. It reads:

"One whose daily walk to his office takes him past a place where a small army of workmen are digging through solid rock an enormous and deep cavity in preparation for the building of another great skyscraper finds it hard to get by the place, so fascinated is he by the mingled power and delicacy shown by the three or four big steam shovels at work there. He had not realized what wonderful machines they were, or what skill was required for their manipulation in the performance of their diversified tasks.

"One man governs the many motions of each, and they are strangely docile monsters. So impressive was

the art he exhibited that curiosity prompted inquiries as to the reward he received for his work. It was learned that his wage for a forty-four-hour week was \$71.50, with double pay for overtime.

"To one to whom that work seemed beyond the doing of any except long-trained specialists, the amount surprised by being small. But how many in the multitude holding jobs called "white-collared" get anything like as much—or ever will, for that matter? And how vastly more interesting—how vastly worthier of hand and brain than standing behind a counter, subject to the capricious favor of customers who often do not know what they want—is the activity of such a man as he! To be sure, he stands at his levers in blue overalls, and strident noises beat upon him all day long, but no man looks at him without envying him his ability and the exercise of it.

"Only the man who invented the machine he operates is his better."

GRADUATE SHORT COURSES IN HIGHWAY ENGINEERING

DURING the months of December, 1925, to March, 1926, inclusive, the University of Michigan will offer 21 professional Short Period Courses in Highway Engineering and Highway Transport especially designed for mature men in practice or preparing for positions in the fields of Highway Engineering or

Highway Transport or with companies manufacturing machinery or materials used in Highway Engineering, or motor trucks, trailers or motor coaches. Eighteen of these courses are open to any person over 21 years of age. Each course will consist of 30 lectures, and will be given in a period of two weeks.

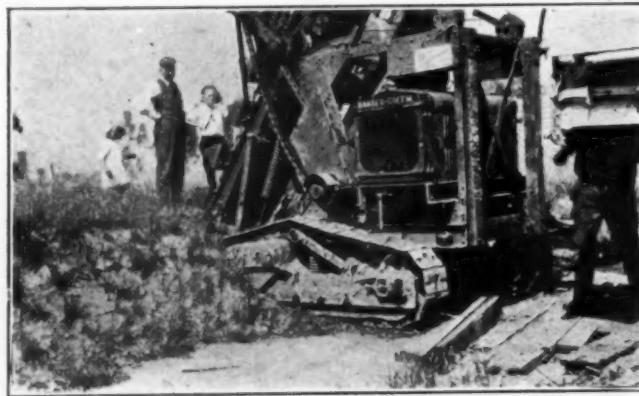
BUCKET LOADER TRIES CELLAR DIGGING

Makes Good on Stiff Assignment in California

FINDING out that a machine can do more than it is expected to do is a pleasant experience for any contractor. C. Erdman, a contractor of Pasadena, Cal., recently made such a welcome discovery when he turned a bucket loader loose on a cellar excavation job.

The average bucket loader is designed to load materials from stockpiles in which the material has been loosened to a reasonable extent, but Mr. Erdman's machine drew no such soft assignment. The grade of the lot in which the cellar was to be excavated was from $2\frac{1}{2}$ to 3 ft. above the sidewalk and the lot was covered with grass and weeds which did their share to hold the sandy soil together and so increase the difficulties of the loader.

The machine was first placed on the sidewalk on planks with its revolving discs ready to cut into the soil. One of the trucks that was waiting to be loaded was impressed into service to give the bucket loader a start. It was backed up close and by gently pushing as the operator set the loader in motion, aided in making the first cut.



DIGGING IN

After that it was easy for the loader as the two photographs on this page testify. It bit its way into the firm soil, picked up sand, grass and weeds and dumped them all into the waiting trucks. It kept on going until the job was finished.

Both photographs show the depth and character of the soil in which the loader did its work. The feeding discs, which by their revolving action throw the

material to be loaded into the path of the buckets, are completely out of sight, and the top of the crawler tread is just about level with the surface of the ground. Under these conditions both buckets and discs were kept more than busy.

This machine, before its exploit in cellar excavation, did some heavy work in removing old pavement in streets that were to be resurfaced. It was put to work on a street where there had been little scarifying done, and succeeded in ripping up the old pavement and loading it into the waiting trucks as fast as they could carry it away. On both jobs it stood severe punishment and did even more than it was designed to do.



THE BUSINESS END OF THE LOADER IS COMPLETELY OUT OF SIGHT

Holland Still Fights the Sea

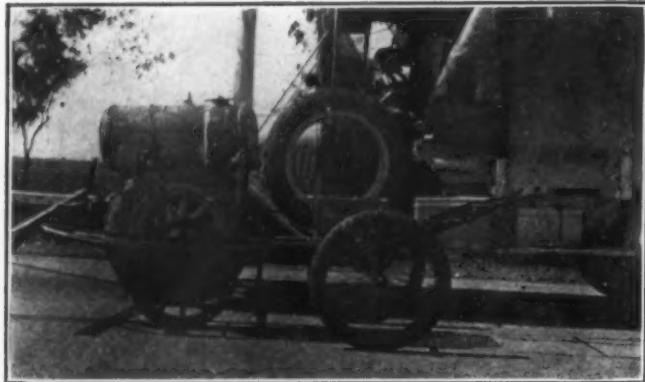


These two photographs show how Holland is reclaiming land from the sea. Dikes are being built which will drain more than 800 square miles of territory now under the Zuyder Zee. © International.

CALIFORNIA DEVELOPS ROAD MARKING MACHINE

Highway Department Shops Construct Efficient Device. Discarded Motor Car Wheels Used

THE Headquarters Shops of the California Highway Commission at Sacramento have built a mechanical concrete road marker which is expected



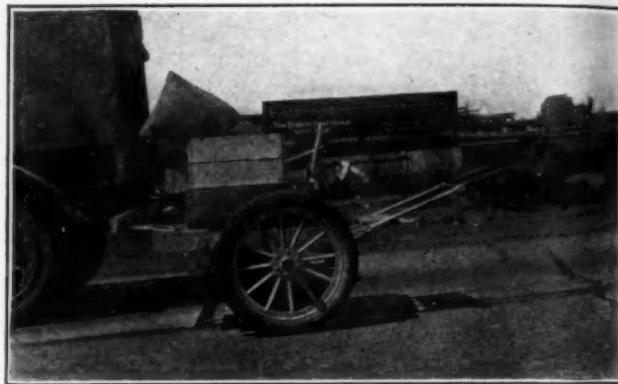
THE MARKER WHICH LEADS THE WAY

to cut the costs which in the past have retarded this important safety work.

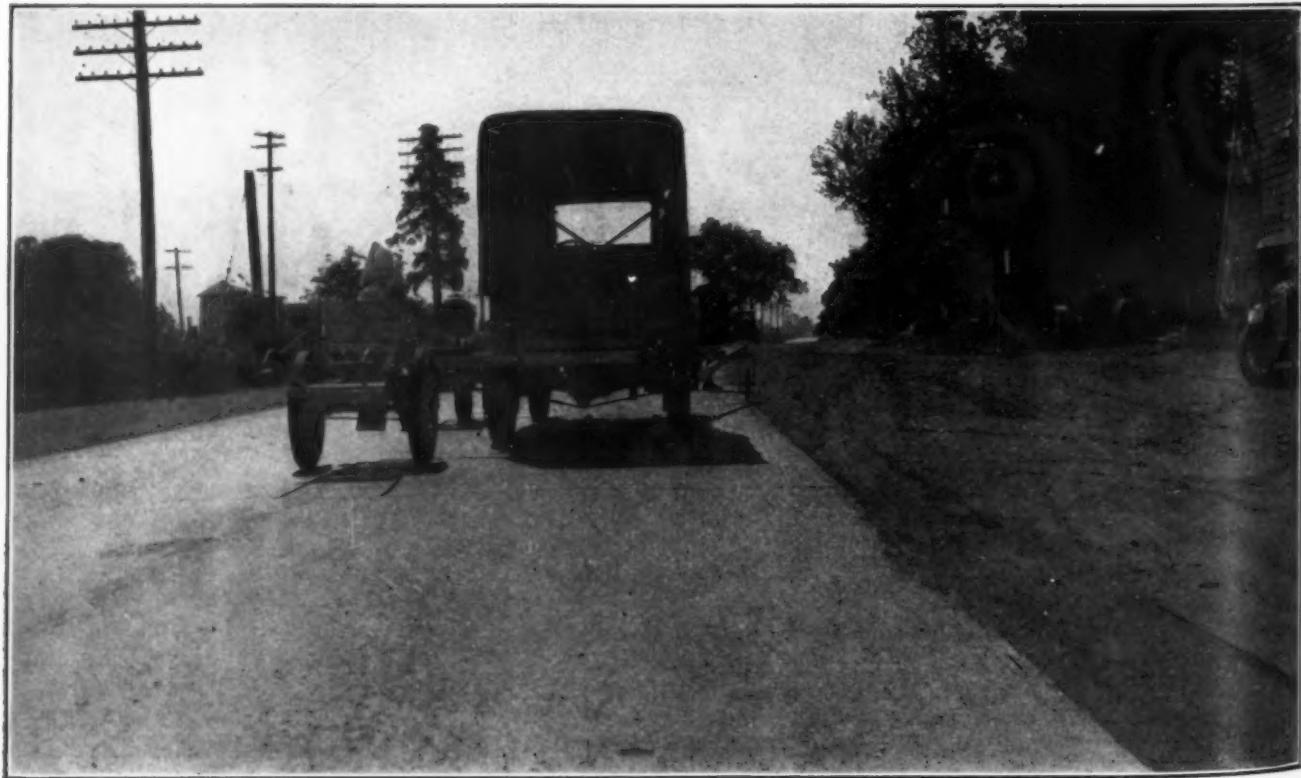
This highway marker, designed to paint the traffic stripe on the center of the concrete highway, not only does away with the small hand machine which it succeeds but cuts the cost to about \$4.00 per mile. Its two units—one for painting the line and the other for distributing sawdust over the fresh paint to prevent its being smeared over the pavement by traffic—

are mounted on one of the trucks owned by the State Highway Commission.

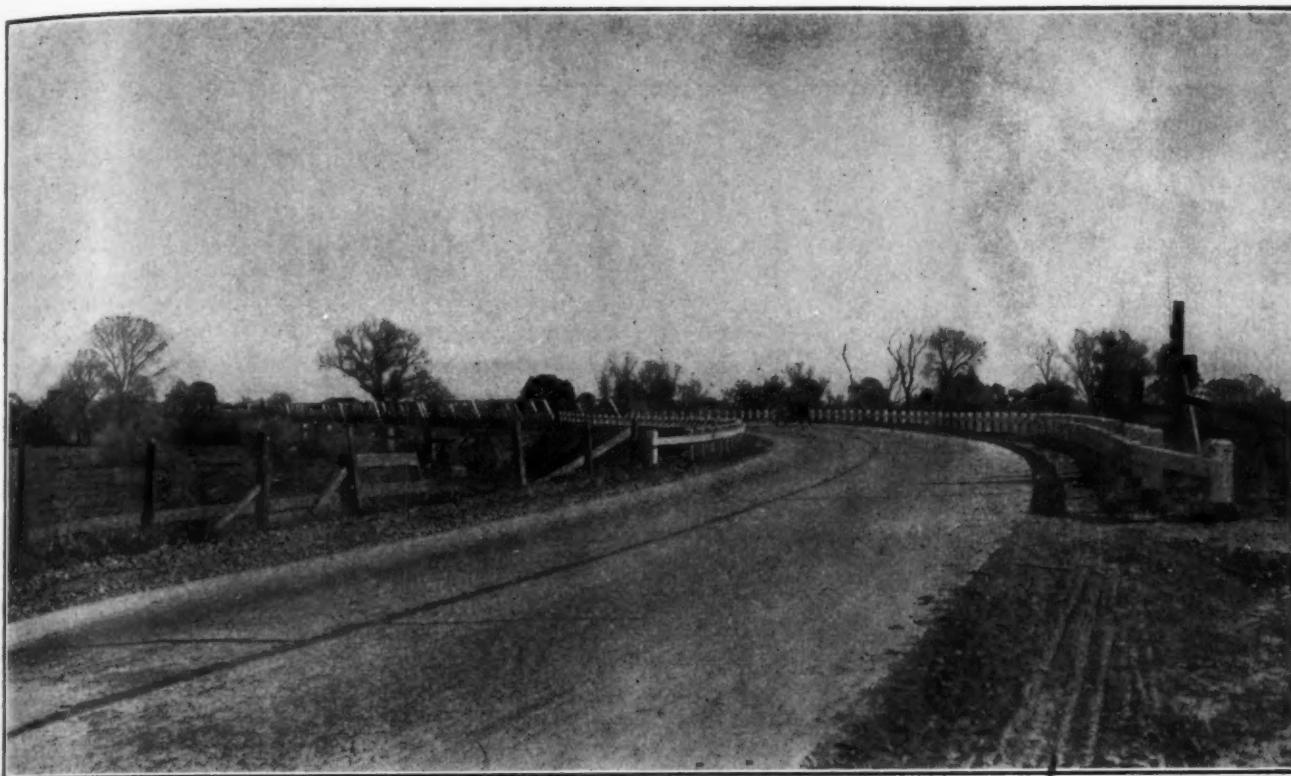
The painting rig consists of a frame supporting the paint container and mounted on three wheels, the front, or marker, being a discarded motor car wheel with a felt covered rim. Two of these are used; one having a rim 4 in. and the other a rim 6 in. in width. The other two wheels are taken from a discarded motorcycle. The paint container is an old truck gu-



THE SAWDUST SPREADER WHICH BRINGS UP THE REAR tank, and the paint flows down a small pipe by gravity and pours on the pavement immediately in front of the marking wheel.



THE TRAFFIC STRIPE MARKER IN OPERATION



A CURVE ON A CALIFORNIA HIGHWAY MARKED WITH NEW MACHINE

A cut-off valve is attached to a long lever so it can be operated by the man pushing the machine. Behind the marking wheel, two paint brushes are placed so as to smooth the paint and work it into the pavement.

The sawdust distributor consists of a bin for holding the sawdust mounted on a pair of discarded motor car wheels. Two small wooden wheels connected by an axle with an eccentric are fixed so that they can be brought to bear against the large wheels. The eccentric is connected by a rod with a tin trough under an opening in the sawdust bin, agitating it and causing the sawdust to fall on the freshly painted

mark. A burlap sack is dragged behind to spread the sawdust evenly.

The line is kept straight by an outrigger with a small wheelbarrow wheel so placed as to be easily seen by the truck operator. It is run along the outside edge of the pavement as a guide. The marking machine is fastened to the front of the truck and the sawdust distributor to the rear. They may be adjusted to mark any width of pavement.

The highway department tried out the machine on five miles of the pavement and found that an average speed of about two miles per hour can be maintained.

DELEGATES TO PAN AMERICAN ROAD CONGRESS SAIL THIS MONTH

THE Pan American Road Congress which will be held in Buenos Aires next month will mark a new step in the development of highway construction in this hemisphere. Delegates from every nation in North and South America are expected to attend, and the interchange of views and experiences will be of benefit to all.

The delegation from the United States will be a large one. In addition to the official delegates, whose names were given in the May issue of *SUCCESSFUL METHODS*, a number of other men identified with highway development will sail in a few days. They will go by way of the Panama Canal and the West Coast of South America, and thus will have an opportunity to visit a number of countries in addition to Argentina in which the Congress will be held. On the return trip they will spend some time in Brazil.

Since the delegates were appointed by President Coolidge, a change has been made in the personnel of

the group from this country, J. Walter Drake, Assistant Secretary of Commerce, was unable to attend, and H. H. Rice, Vice-President of the General Motors Corporation, has been appointed in Mr. Drake's place as chairman of the delegation. Mr. Rice has long been identified with the automobile business and has shown a keen interest in highway development.

The various members of the United States delegation are preparing papers which will be contributed to the discussion in each of the five sections into which the work of the Congress will be divided. In addition to presenting these papers formally, the members of the delegation are preparing to participate in the general discussions at each section.

While this country's delegation will center their papers and discussions on highway development in the United States, they propose to bear in mind the problems especially vital in Latin American countries.

TRACTOR WITH HOIST ATTACHMENT DRIVES PILES

CONSTRUCTION equipment that can be moved quickly is pretty sure to pay for itself quickly. It isn't difficult to get it from one job to another and from point to point on a single job.

Prentiss & Ashley of Natchez, Mississippi, have been operating such a piece of equipment on a bridge job at St. Francisville, Louisiana. It consists of a small tractor with a hoist attachment and it has more than proved its worth during the construction of the approaches to the new bridge.

The photograph at the top of this page shows the machine perched on one of the approaches and operating a drop hammer pile driver. It was used from the start of the job, driving the first piles at the edge of the stream, and then moving out over the water on temporary plank-

The larger photograph at the bottom of the page

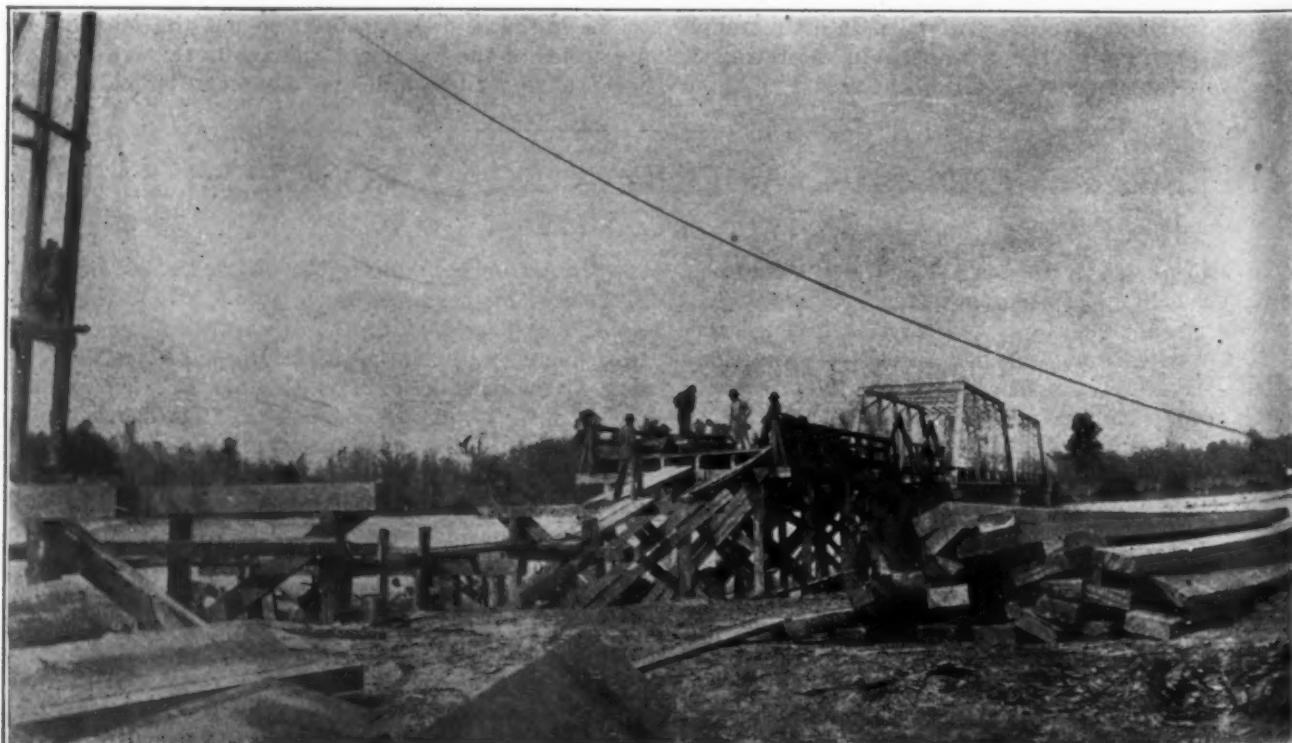


DRIVING PILES

shows the character of the work accomplished by the portable hoist and also gives a good picture of the bridge. The ease with which the machine moved from one place to another made it invaluable on this particular job.

A machine of this character always is useful on any job where there is hoisting to be done and it is not practicable to use a stationary hoist. On a building job the tractor-hoist can work on one side of the building for a few minutes and then transfer its activities to the opposite side with a minimum of lost time.

It also can be taken from one job to another under its own power, and if not needed on one job for a day or two, can leave for other work and return later. Its mobility makes it a real asset in all sorts of construction work. It doesn't keep the job waiting but is much more likely to be found waiting for the job.



GENERAL VIEW OF BRIDGE SHOWING TYPE OF CONSTRUCTION